

# Advanced Curation For Current and Future Extraterrestrial Sample Collections

Completed Technology Project (2012 - 2013)



## Project Introduction

JSC is responsible for "The curation of all extraterrestrial material under NASA control, including future NASA missions." This is year two of a planned three-year project of monitoring and development that will position JSC to curate samples from future missions with increasingly stringent requirements for organic contamination control, and to improve curation of current sample collections. The Planetary Science Decadal Survey 2013 - 2022 recommended Mars, the Moon, asteroids and comets as the highest priority sample return missions. In support of these missions, the Decadal Survey stated that such missions "present new challenges, including curation of organics uncontaminated by Earth's biosphere . . ."

This is a planned three-year project to develop extraterrestrial sample curation techniques and equipment to prepare for future human and robotic sample return missions to Mars, the Moon, asteroids, and comets as well as to improve techniques and equipment used in current curation operations. The project focuses on sample curation with a high degree of organic cleanliness. Specifically, during year 1 we developed a detailed understanding of historical organic contamination in the JSC Astromaterials Curation laboratories. In year 2 we are monitoring current organic cleanliness and assessing cleaning techniques in the laboratories and a dedicated testbed. In year 3 we plan to use the testbed to demonstrate methods and technology to reduce organic contamination in these laboratories.

## Anticipated Benefits

The results of this project will be used by NASA's OSIRIS-REx mission to design, construct, and operate their dedicated asteroid sample curation laboratory. If NASA receives samples from the JAXA Hayabusa-2 mission, these results will be critical to design of a curation laboratory for those samples.



Project Image Advanced Curation For Current and Future Extraterrestrial Sample Collections

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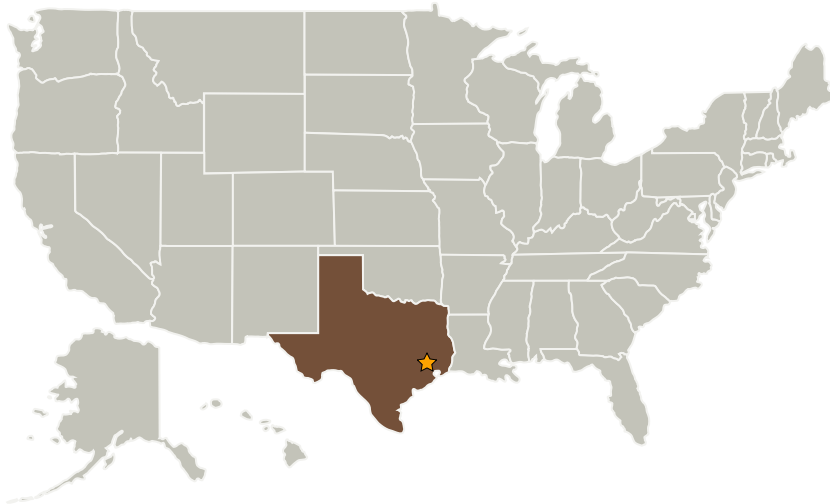
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## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Jacobs Engineering Group, Inc.	Supporting Organization	Industry	Dallas, Texas

### Primary U.S. Work Locations

Texas

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Johnson Space Center (JSC)

### Responsible Program:

Center Innovation Fund: JSC CIF

## Project Management

### Program Director:

Michael R Lapointe

### Program Manager:

Carlos H Westhelle

### Project Manager:

Carlton C Allen

### Principal Investigator:

Carlton C Allen

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## Images



**12095-1376324291293.jpg**

Project Image Advanced Curation For Current and Future Extraterrestrial Sample Collections (<https://techport.nasa.gov/image/2195>)



**12095-1376324373634.gif**

Project Image Advanced Curation For Current and Future Extraterrestrial Sample Collections (<https://techport.nasa.gov/image/2196>)

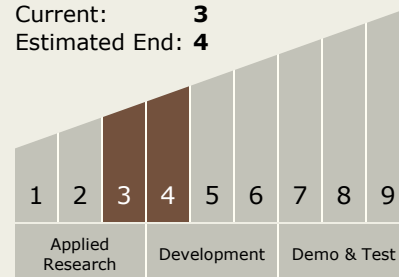


**12095-1376324545586.png**

Project Image Advanced Curation For Current and Future Extraterrestrial Sample Collections (<https://techport.nasa.gov/image/2197>)

## Technology Maturity (TRL)

Start: **3**  
Current: **3**  
Estimated End: **4**



## Technology Areas

### Primary:

- TX07 Exploration Destination Systems
  - └ TX07.3 Mission Operations and Safety
    - └ TX07.3.5 Planetary Protection